



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Vale District Office
100 Oregon Street
Vale, Oregon 97918
<http://www.or.blm.gov/Vale/>

OR-030-2001-14
1742

September 7, 2001

Dear Reader:

An Environmental Assessment (EA) Document (OR-030-2001-14) has been prepared by the Vale District, Bureau of Land Management for noxious weed control and rangeland rehabilitation on 2,000 acres of rangeland north of Succor Creek State Park.

The end of the 15-day public comment period on the EA in which you will have an opportunity to comment on this proposal and the adequacy of the Environmental Assessment is September 26, 2001.

Comments, including names and addresses of respondents, will be available for public review at the identified administrative office during regular business hours (8:00 a.m. to 4:30 p.m), Monday through Friday, except holidays, and may be published as a part of the EA document or other related documents. Individual respondents may request confidentiality.

If you wish to withhold your name or street address from public review or from disclosure under the Freedom of Information Act, you must state this prominently at the beginning of your written comment. Such requests will be honored to the extent allowed by law.

All submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, will be make available for public inspection in their entirety.

If have any questions concerning this project, please contact Randy Eyre at (541) 473-3144.

Sincerely,

S/Tom Dabbs

Tom Dabbs

Field Manager
Malheur Resource Area
Lower Succor Creek Noxious Weed Control and Rehabilitation Project
Environmental Assessment
EA OR-030-2001-14

BLM OFFICE: Malheur Field Office, Vale District

PROPOSED ACTION: Herbicide Treatment and Seeding in the Lower Succor Creek area.

CONFORMANCE WITH APPLICABLE LAND USE PLAN

This proposed action is subject to the following land use plans:

Name of Plan: Northern Malheur Management Framework Plan (MFP)(1983)
 Southern Malheur Rangeland Program Summary (RPS)(1983)

These plans have been reviewed to determine if the proposed action conforms with the land use plan's terms and conditions as required by 43 CFR 1610.5

REMARKS

This project is in conformance with the MFP and RPS.

NEED FOR THE PROPOSED ACTION

The need for the proposed action is to convert or restore a highly flammable, early seral, annual rangeland to a desirable perennial grass, forb and shrub rangeland. It is well known that cheatgrass/medusa head ranges effectively out compete native vegetation when cover of these species has been reduced. Cheatgrass and medusa heads' rapid growth and ability to utilize most of the available upper soil moisture enables them to exclude seedlings of other species. They can dominate a site and retain their position within the plant community for 4-5 decades (Daubenmire, 1975).

The purpose of the herbicide treatment would be to reduce the accumulation of noxious weed and annual plant material and decrease the seed bank of annual species to allow the establishment of shrubs and perennial grass and forb species.

The specific objectives of the proposed action would be to reduce annual noxious weeds, grasses and forbs and establish perennial shrub and herbaceous ground cover. The proposed action would replace the existing annual vegetation with desirable perennial grasses, forbs and shrubs.

In addition, the establishment of perennial grasses, forbs and shrubs would reduce fire frequency of the area and associated suppression costs. Cheatgrass and medusa head remain a fire hazard longer than perennial grasses because they dry 4 to 6 weeks earlier than perennials and are susceptible to fire 1 to 2 months longer in the fall (Stewart and Hull, 1949). In Oregon, cheatgrass ranges were found to be 500 times more likely to burn than non cheatgrass ranges. Cheatgrass fires spread very

rapidly and may extend into nearby stands of native vegetation reducing the cover of native perennial grass, forb and shrub species.

AFFECTED ENVIRONMENT

The project area includes upland benches adjacent to lower Succor Creek which have been converted to annual and undesirable vegetation dominated by peppergrass, cheatgrass, medusa head rye and Russian thistle.

Wildlife species present in the area include mule deer, pronghorn antelope, chukar, coyote, badger, raptors, lizards, long billed curlews and neotropical songbirds. Due to the present lack of perennial vegetation and structural diversity, the area is low in wildlife diversity.

The area around Succor Creek, with a perennial and reliable water source has been used during both prehistoric and historic times. Native Americans camped, hunted and fished beside the creek and trappers, ranchers and settlers utilized the water for livestock and domestic purposes.

In this area lower tuffaceous sedimentary rocks (Middle Miocene) are overlain by basalt interbedded with leaf bearing tuff, yellowish white, or grey in color. Lenses of coal are present interbedded with deposits of Succor Creek ash. Tuffs and sedimentary deposits date to between 15.5 and 10.6 million years ago. Fossils of roots, leaves, fish, Oreodonts and horses have been found located in Succor Creek Ash deposits.

The soils are similar to the Owyhee, Nyssa, and related series. These series are moderately deep to very deep, well drained Aridisols that formed in mixed lacustrine materials. The soils on the proposed project have some volcanic parent materials with calcareous influenced horizons and duripans. Surface textures range from silt loams to fine sandy loams.

Recreational use levels are fairly light consisting primarily of upland game hunting, rockhounding, and hiking. A minor amount of off-road vehicle use occurs in and near the project area.

The majority of the project area is located in a visual resource management class IV area which provides for management activities that make major modifications to the landscape. Locations near Succor Creek at the southern reaches of the project area are classified as class II (retain existing landscape) and III (partially retain existing landscape).

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES A and B

Proposed Action

The proposed action is to conduct a 2000 acre herbicide treatment followed by seeding treatments. Approximately 1100 acres are within the North Campkettle pasture of the Three Fingers allotment,

and 900 acres are within the Antelope pasture of the Board Corrals allotment. The attached maps show the location and area to be treated. The herbicide treatment would occur in the spring or fall followed by a fall seeding. Following seeding, the area would be closed from livestock grazing for a minimum of two growing seasons by construction of approximately .6 mile of fence. The proposed action may be implemented in segments depending upon availability of funding.

To suppress the annual noxious weed species, a herbicide treatment of glyphosate at 16-20 ounces per acres would be applied at the 2-3 leaf stage during the early spring or fall using ground application. Recent work by The Nature Conservancy (1997) and Prineville District BLM (1995) has shown that herbicide treatment enhances the establishment of desirable perennial species by reducing the seed bank and competition of annual weedy species. Glyphosate prevents the plant from producing amino acids that are the building blocks of plant proteins. A glyphosate Herbicide Information Profile is attached (Appendix 1). If alternative, more effective or efficient application methods and herbicides are approved for use on public rangelands in Oregon they may be substituted for glyphosate and used on this project site.

Following the spray treatment, the area would be seeded with a mixture of adaptive perennial grasses, forbs and shrubs and may include the following species: bottlebrush squireltail, bluebunch wheatgrass, great basin wildrye, crested wheatgrass, Lewis flax, western yarrow, scarlet globemallow, Wyoming big sagebrush, shadscale saltbush and four wing saltbush at a combined rate of approximately 8-10 pounds per acre with the final mix dependant upon seed availability. A native seed mixture would be used on the majority of the project area, while a non-native/greenstrip mixture would be used on less than 300 acres of the project area in highly disturbed areas adjacent to irrigation canals and roads. Depending upon individual species seeding requirements, the seeding would be done using a rangeland drill or similar seeding apparatus.

DESCRIPTION OF OTHER ALTERNATIVES

Alternative A.(NO ACTION) - Under this alternative, the herbicide treatment and seeding would not be conducted.

Alternative B. (Disk and Seed) - Under this alternative the area would be disc plowed with a tractor and seeded. The herbicide treatment would not be used.

ENVIRONMENTAL IMPACTS

PROPOSED ACTION:

The spraying and seeding operation would not have a long- term effect on the air quality. The loss of vegetation and vegetative matter in the surface horizon would subject the soils to wind and water erosion. Moderate soil impacts would be expected during the drilling phase of the project. However, the effects are not expected to be significant because of minimal slopes and relatively low precipitation within the project area. In addition, wind and water erosion rates will decrease after the seeding becomes established.

Herbicide treatment and subsequent seeding would not significantly affect the VRM Class rating which currently exists for the area. Establishment of more diverse perennial vegetation in a mosaic pattern would enhance visual variances. Eventually drilled areas would provide a more visually pleasing appearance than the existing situation. Fencing would have a minor visual impact on the immediate setting.

Vale District's 5 year Integrated Weed Control Program and Environmental Assessment No. OR-030-89-19 as amended, tiered to the Northwest Area Noxious Weed Control Program Environmental Impact Statement (December 1985) and Supplement (March 1987) addresses the environmental and human impacts of the proposed herbicide treatment. There would be no changes in the implementation of the this programmatic EA in regards to the proposed action. The use of glyphosate at 16-20 fl ounces per acre. should not permanently adversely impact remnant perennial grasses and shrubs. In the long term perennial grasses and shrubs would increase due to the suppression of noxious and annual weeds.

The impact of rangeland drilling equipment would loosen and displace the top 2 to 3 inches of the soil within the furrows which are 12 inches apart, increasing the potential for short term soil erosion. This would be temporary, however, as the newly seeded plants would begin to stabilize the soil within the first year of drilling.

The proposed action would benefit wildlife by providing structural diversity and improved forage conditions. Small mammal, reptile and bird populations should not be negatively impacted because there is not significant structure and diversity in the existing community. A short-term loss of cover and forage could result from the herbicide treatment. In the long term, habitat quality and quantity would increase with the increase in perennial forbs, shrubs and grasses.

Implementation of this project closely conforms with Rangeland Health Standards in an area that supports a highly fragmented shrub component. The proposed action would provide a more reliable forage base for livestock and wildlife, and improved vegetation diversity and ecological conditions. There would be no irreversible or irretrievable commitment of resources. There would be no significant cumulative impacts as a result of implementation of this alternative.

A Class III cultural resources survey for prehistoric and historic sites will be conducted prior to surface disturbing activities. Any sites located during the survey will be recorded and avoided as appropriate. A survey for fossil flora and fauna will also be conducted at the same time. If paleo resources are located, depending on the nature and extent of the fossil locality, the area will either be flagged and avoided during rehabilitation activities, or the fossils will be recovered prior to rehabilitation efforts.

Project activities would have no long term adverse impacts on recreational uses within the area. Any project activities during the fall may temporarily disrupt dispersed hunting activities. Hunters would have adequate locations to hunt without disruption in nearby locations on public lands. The fencing would have no impact on recreational activities.

Alternative A.(NO ACTION) - The vegetation condition of the area would continue to be the same as the present. Weedy annual species would continue to increase and occupy the site and provide a

seed source into surrounding areas. Diversity on the site has declined to the degree that no action is uneconomical over the long term. Little or no potential for site improvement is possible with no action. The potential for recurring wildland fires would continue to exist throughout the project area.

There would be no affect to cultural resources or fossil flora and fauna from mechanized equipment as a result of the no action alternative. However, surface disturbance in the long term may be greater from erosional factors without diverse perennial vegetation to provide surface stability.

Alternative B. Disc Plowing and Seeding- Disc plowing would destroy nearly all the existing vegetation, including any remnant perennial grasses and shrubs that may exist. Subsequent seeding to desirable species would be necessary. Disc plowing leaves considerable mulch at or near the soil surface and does not kill annual weedy seeds in the soil horizon. Breaking up of soils and removing vegetative cover by this method would increase the potential for soil loss and sediment runoff.

The impact of rangeland drilling equipment would loosen and displace the top 2 to 3 inches of the soil within the furrows which are 12 inches apart. This would be temporary, however, as the new plants would begin to stabilize the soil within the first year of drilling.

The proposed action would benefit wildlife by providing structural diversity and improved forage conditions. Small mammal, reptile and bird populations should not be negatively impacted because there is not significant structure and diversity in the existing community. A short-term loss of cover and forage could result from the disc treatment. In the long term, habitat quality and quantity should increase with the increase in perennial forbs, shrubs and grasses.

A Class III cultural resources survey for prehistoric and historic sites will be conducted prior to surface disturbing activities. Any sites located during the survey will be recorded and avoided as appropriate. A survey for fossil flora and fauna will also be conducted at the same time. If paleo resources were located, depending on the nature and extent of the fossil locality, the area will either be flagged and avoided during rehabilitation activities, or the fossils will be recovered prior to rehabilitation efforts.

Seeding, fencing and disking would not significantly affect the VRM Class rating which currently exists for the area.

Disking, seeding and fencing would have similar impacts on recreational uses as described under the proposed action.

In the long term this alternative would provide a more reliable forage base for livestock and wildlife, and improved vegetation diversity and ecological conditions. There would be no irreversible or irretrievable commitment of resources. There would be no significant cumulative impacts as a result of implementation of this alternative.

The following resources were considered in preparation of this EA, and are either not present or would not be affected by the proposed action or alternatives:

CRITICAL ELEMENTS

ACEC'S
FARMLANDS, PRIME/UNIQUE
FLOODPLAIN
NATIVE AMERICAN RELIGIOUS CONCERNS
T&E SPECIES
WASTES, HAZARDOUS/SOLID
WATER QUALITY
WETLANDS/RIPARIAN ZONES
WILD AND SCENIC RIVERS
WILDERNESS
ENVIRONMENTAL JUSTICE

DESCRIPTION OF MITIGATION MEASURES AND RESIDUAL IMPACTS

The design features and mitigation measures for herbicide application as described in the EA (OR-030-89-19 as amended in 1994) titled "The Vale District's 5 Year Noxious Weed Control Program" will be strictly followed. All herbicides will be applied in accordance with EPA label requirements.

Monitoring pretreatment and post-treatment will be done within the project area.

LITERATURE CITED

Daubenmire, R.F. 1975. Plant Succession on Abandoned Fields, and Fire Influences, in a Steppe Area in Southeastern Washington. Northwest Science. 49(1): 36-48.

Stewart, G., and A.C. Hull. 1949. Cheatgrass (Bromus tectorum) - An Ecological Intruder in Southern Idaho. Ecology. 30 (1): 58-74.

Torrel et al. 1961. The Medusahead Rye Problem in Idaho. Weeds. 9:124-131.

Tisdale, E.W., and M. Hironaka. 1981. The Sagebrush-Grass Region. A Review of the Ecological Literature. Bull. 33. Moscow, Idaho. U of I, Forest and Wildlife and Range Expt. Station. 31pp.

USDI-BLM. 1995. Prineville District. Murderer's Creek Medusahead Rye Control (Wilderness Portion) E A. No. OR-054-4-83.

Young, J.A. 1976. Estimating Potential Downy Brome Competition after Wildfires. JRM. 29(4): 322-325.

PERSONS/AGENCIES CONSULTED

Three Fingers and Board Corrals allotment permittees
Oregon Department of Fish and Wildlife
Identified interested publics

BLM STAFF SPECIALISTS

Al Bammann - Wildlife Biologist/T&E Animals
Diane Pritchard - Archeologist
Bob Alward - Outdoor Recreation Planner
Jean Findley - Botanist/T&E Plants
Jerry Erstrom - District Weed Coordinator
Lynne Silva - Malheur Resource Area Weed Coordinator
Shaney Rockefeller - Soil/Water/Air
Tom Dabbs - Malheur Resource Area Field Manager
Randy Eyre - Planning and Environmental Coordinator

FINDING OF NO SIGNIFICANT IMPACTS

On the basis of the information contained in this EA (OR-030-2001-14), it is my determination that the proposed alternative and potential environmental and human consequences and mitigation measures does not constitute a major Federal action affecting the quality of the environment. Therefore, an EIS is not necessary and will not be prepared. I have determined that the proposed action is in conformance with the District's land use plan.

s/Tom Dabbs

9/07/2001

Acting Malheur Field Manager

DECISION/RATIONALE

Based upon the analysis in this EA, the proposed action would have little adverse long term impacts. The short term impacts that may occur as a result of the herbicide application and seeding include: loss of vegetation, increased wind and water erosion. These impacts will be offset by the long term benefits of the proposed project. Seeding of perennial plants will reduce the potential frequency of wildland fires and continual propagation and spreading of annual weedy species. Other long term benefits of the project include improved rangeland health and species diversity, and improved wildlife habitat and livestock forage.

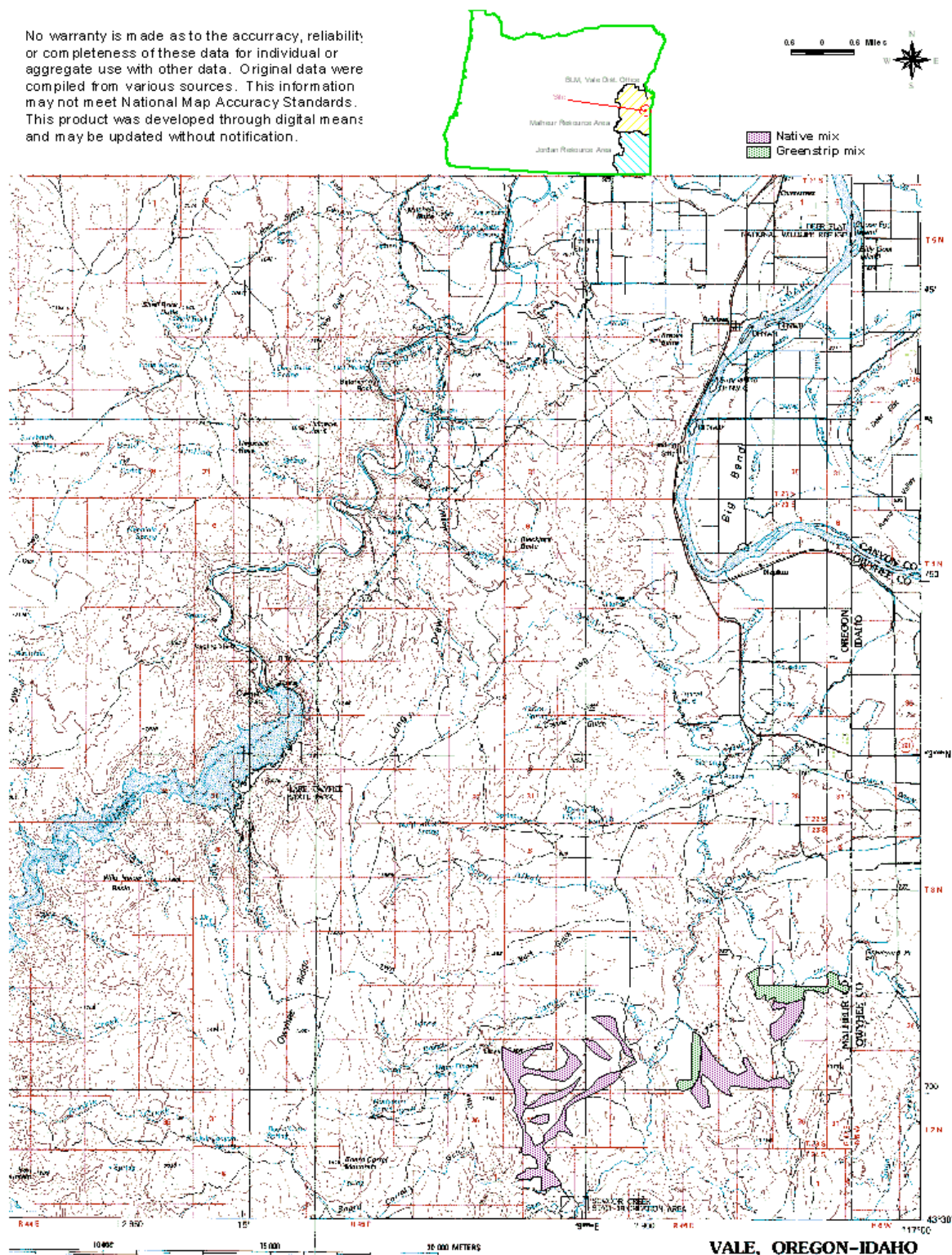
My decision is to implement the proposed action and mitigation measures as described in EA OR-030-2001-14. Therefore, the proposed action is adopted as written with the mitigations identified below:

1. The design features and mitigation measures for herbicide application as described in the Environmental Assessment (EA No. OR-030-89-19 as amended in 1994) titled "The Vale District's 5 Year Noxious Weed Control Program" will be strictly followed. All herbicides will only be applied in accordance with EPA standards.
2. Monitoring pretreatment and post treatment will be done yearly within the project area.
3. If cultural resources or T&E species are located, herbicide application and seeding treatments will be adjusted to prevent disturbance.
4. No livestock grazing will occur for two growing seasons after the seeding.

S/Tom Dabbs, Acting Malheur Field Manager
Authorized Official

10/01/2001
Date

No warranty is made as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.

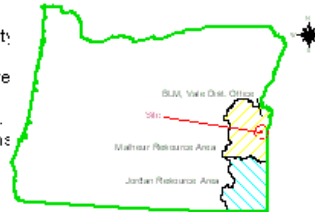


Appendix1

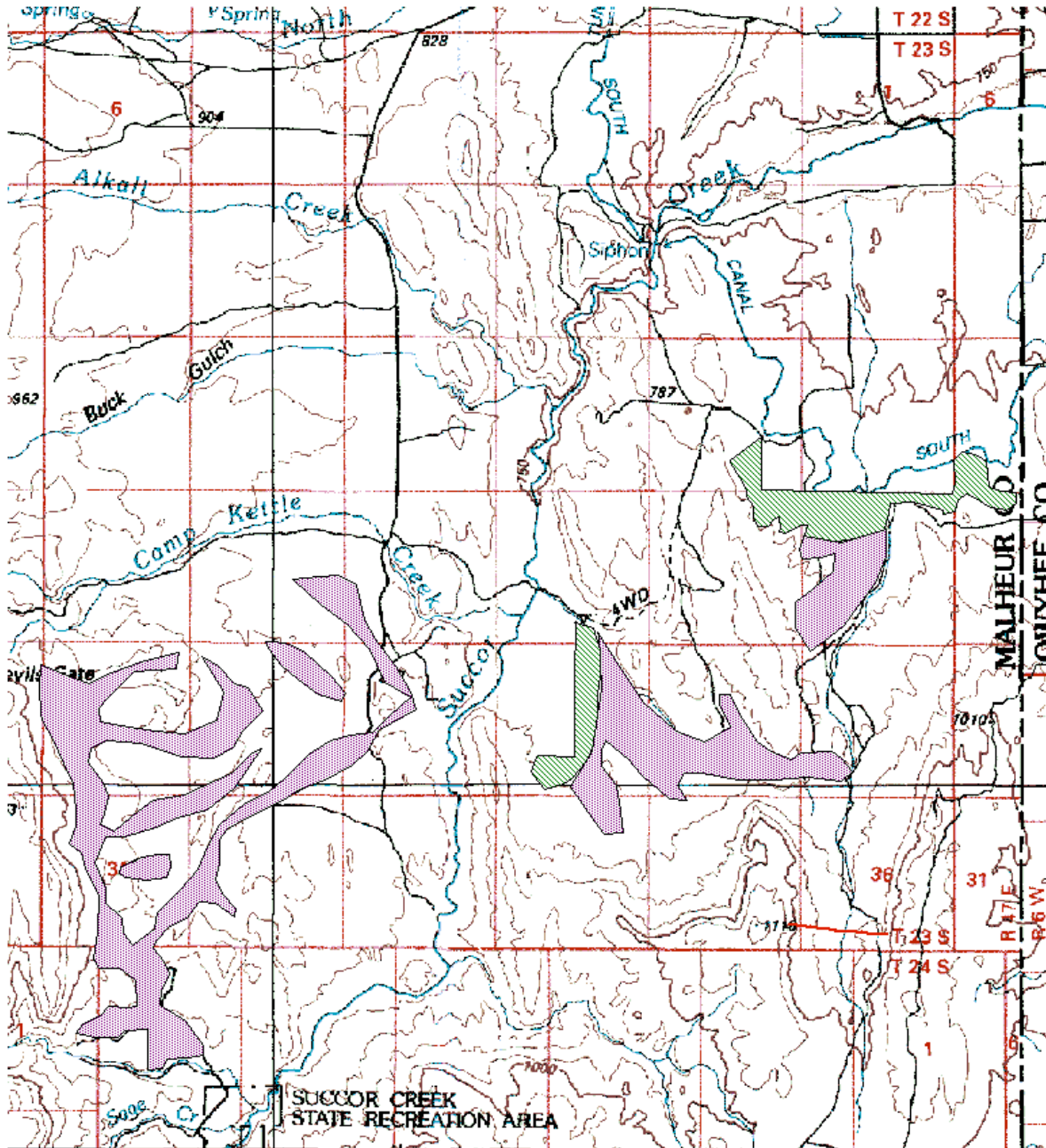
Extension Toxicology Network Glyphosate Information Profile

No warranty is made as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.

0.2 0 0.2 Miles



Native mix
Greenstrip mix
Fence



A Pesticide Information Project of Cooperative Extension Offices of Cornell University, Oregon State University, the University of Idaho, and the University of California at Davis and the Institute for Environmental Toxicology, Michigan State University. Major support and funding was provided by the USDA/Extension Service/National Agricultural Pesticide Impact Assessment Program.

EXTOXNET primary files maintained and archived at Oregon State University

Revised June 1996

Glyphosate

Trade and Other Names: Trade names for products containing glyphosate include Gallup, Landmaster, Pondmaster, Ranger, Roundup, Rodeo, and Touchdown. It may be used in formulations with other herbicides.

Regulatory Status: Glyphosate acid and its salts are moderately toxic compounds in EPA toxicity class II. Labels for products containing these compounds must bear the Signal Word WARNING. Glyphosate is a General Use Pesticide (GUP).

Chemical Class: Not Available

Introduction: Glyphosate is a broad-spectrum, nonselective systemic herbicide used for control of annual and perennial plants including grasses, sedges, broad-leaved weeds, and woody plants. It can be used on non-cropland as well as on a great variety of crops. Glyphosate itself is an acid, but it is commonly used in salt form, most commonly the isopropylamine salt. It may also be available in acidic or trimethylsulfonium salt forms. It is generally distributed as water-soluble concentrates and powders. The information presented here refers to the technical grade of the acid form of glyphosate, unless otherwise noted.

Formulation: Glyphosate itself is an acid, but it is commonly used in salt form, most commonly the isopropylamine salt. It may also be available in acidic or trimethylsulfonium salt forms. It is generally distributed as water-soluble concentrates and powders.

Toxicological Effects:

! **Acute toxicity:** Glyphosate is practically nontoxic by ingestion, with a reported acute oral LD50 of 5600 mg/kg in the rat. The toxicities of the technical acid (glyphosate) and the formulated product (Roundup) are nearly the same. The oral LD50 for the trimethylsulfonium salt is reported to be approximately 750 mg/kg in rats, which indicates moderate toxicity. Formulations may show moderate toxicity as well (LD50 values between 1000 mg/kg and 5000 mg/kg). Oral LD50 values for glyphosate are greater than 10,000 mg/kg in mice, rabbits, and goats. It is practically nontoxic by skin exposure, with reported dermal LD50 values of greater than 5000 mg/kg for the acid and isopropylamine salt. The trimethylsulfonium salt has a reported dermal LD50 of greater than 2000 mg/kg. It is reportedly not irritating to the skin of rabbits, and does not induce skin sensitization in guinea pigs. It does cause eye irritation in rabbits. Some formulations may cause much more extreme irritation of the skin or eyes. In a number of human volunteers, patch tests produced no visible skin changes or sensitization. The reported 4-hour rat inhalation LC50 values for the technical acid and salts were 5 to 12 mg/L, indicating moderate toxicity via this route. Some formulations may show high acute inhalation toxicity. While it does contain a phosphatyl functional group, it is not structurally similar to

organophosphate pesticides which contain organophosphate esters, and it does not significantly inhibit cholinesterase activity.

- ! **Chronic toxicity:** Studies of glyphosate lasting up to 2 years, have been conducted with rats, dogs, mice, and rabbits, and with few exceptions no effects were observed. For example, in a chronic feeding study with rats, no toxic effects were observed in rats given doses as high as 400 mg/kg/day. Also, no toxic effects were observed in a chronic feeding study with dogs fed up to 500 mg/kg/day, the highest dose tested.
- ! **Reproductive effects:** Laboratory studies show that glyphosate produces reproductive changes in test animals very rarely and then only at very high doses (over 150 mg/kg/day). It is unlikely that the compound would produce reproductive effects in humans.
- ! **Teratogenic effects:** In a teratology study with rabbits, no developmental toxicity was observed in the fetuses at the highest dose tested (350 mg/kg/day). Rats given doses up to 175 mg/kg/day on days 6 to 19 of pregnancy had offspring with no teratogenic effects, but other toxic effects were observed in both the mothers and the fetuses. No toxic effects to the fetuses occurred at 50 mg/kg/day. Glyphosate does not appear to be teratogenic.
- ! **Mutagenic effects:** Glyphosate mutagenicity and genotoxicity assays have been negative [58]. These included the Ames test, other bacterial assays, and the Chinese Hamster Ovary (CHO) cell culture, rat bone marrow cell culture, and mouse dominant lethal assays. It appears that glyphosate is not mutagenic.
- ! **Carcinogenic effects:** Rats given oral doses of up to 400 mg/kg/day did not show any signs of cancer, nor did dogs given oral doses of up to 500 mg/kg/day or mice fed glyphosate at doses of up to 4500 mg/kg/day. It appears that glyphosate is not carcinogenic.
- ! **Organ toxicity:** Some microscopic liver and kidney changes, but no observable differences in function or toxic effects, have been seen after lifetime administration of glyphosate to test animals.
- ! **Fate in humans and animals:** Glyphosate is poorly absorbed from the digestive tract and is largely excreted unchanged by mammals. At 10 days after treatment, there were only minute amounts in the tissues of rats fed glyphosate for 3 weeks. Cows, chickens, and pigs fed small amounts of glyphosate had undetectable levels (less than 0.05 ppm) in muscle tissue and fat. Levels in milk and eggs were also undetectable (less than 0.025 ppm). Glyphosate has no significant potential to accumulate in animal tissue.

! Ecological Effects:

- ! **Effects on birds:** Glyphosate is slightly toxic to wild birds. The dietary LC50 in both mallards and bobwhite quail is greater than 4500 ppm.

- ! **Effects on aquatic organisms:** Technical glyphosate acid is practically nontoxic to fish and may be slightly toxic to aquatic invertebrates. The 96-hour LC50 is 120 mg/L in bluegill sunfish, 168 mg/L in harlequin, and 86 mg/L in rainbow trout. The reported 96-hour LC50 values for other aquatic species include greater than 10 mg/L in Atlantic oysters, 934 mg/L in fiddler crab, and 281 mg/L in shrimp. The 48-hour LC50 for glyphosate in *Daphnia* (water flea), an important food source for freshwater fish, is 780 mg/L. Some formulations may be more toxic to fish and aquatic species due to differences in toxicity between the salts and the parent acid or to surfactants used in the formulation. There is a very low potential for the compound to build up in the tissues of aquatic invertebrates or other aquatic organisms.
- ! **Effects on other organisms:** Glyphosate is nontoxic to honeybees. Its oral and dermal LD50 is greater than 0.1 mg/ bee. The reported contact LC50 values for earthworms in soil are greater than 5000 ppm for both the glyphosate trimethylsulfonium salt and Roundup.

! Environmental Fate:

- ! **Breakdown in soil and groundwater:** Glyphosate is moderately persistent in soil, with an estimated average half-life of 47 days. Reported field half-lives range from 1 to 174 days. It is strongly adsorbed to most soils, even those with lower organic and clay content. Thus, even though it is highly soluble in water, field and laboratory studies show it does not leach appreciably, and has low potential for runoff (except as adsorbed to colloidal matter). One estimate indicated that less than 2% of the applied chemical is lost to runoff. Microbes are primarily responsible for the breakdown of the product, and volatilization or photodegradation losses will be negligible.
- ! **Breakdown in water:** In water, glyphosate is strongly adsorbed to suspended organic and mineral matter and is broken down primarily by microorganisms. Its half-life in pond water ranges from 12 days to 10 weeks.
- ! **Breakdown in vegetation:** Glyphosate may be translocated throughout the plant, including to the roots. It is extensively metabolized by some plants, while remaining intact in others.

Physical Properties:

- ! **Appearance:** Glyphosate is a colorless crystal at room temperature.
- ! **Chemical Name:** N-(phosphonomethyl) glycine
- ! **CAS Number:** 1071-83-6
- ! **Molecular Weight:** 169.08
- ! **Water Solubility:** 12,000 mg/L @ 25 C

! **Solubility in Other Solvents:** is. in common organics (e.g., acetone, ethanol, and xylene)

! **Melting Point:** 200 C

! **Vapor Pressure:** negligible

! **Partition Coefficient:** -3.2218 - -2.7696

! **Adsorption Coefficient:** 24,000 (estimated)

Exposure Guidelines:

! **ADI:** 0.3 mg/kg/day

! **MCL:** Not Available

! **RfD:** 0.1 mg/kg/day

! **PEL:** Not Available

! **HA:** 0.7 mg/L (lifetime)

! **TLV:** Not Available

DISCLAIMER: The information in this profile does not in any way replace or supersede the information on the pesticide product labeling or other regulatory requirements. Please refer to the pesticide product labeling.